

## ARRL Says Amateur Service is "Fertile Testing Ground" for SDR Technology

NEWINGTON, CT, Jun 19, 2000

The ARRL says that Amateur Radio "is a fertile testing ground" for software defined radio technology and that the technology would be especially valuable to facilitate disaster communications. The League was commenting in response to FCC *Notice of Inquiry* ET Docket No 00-47 on SDR technology, released in March.

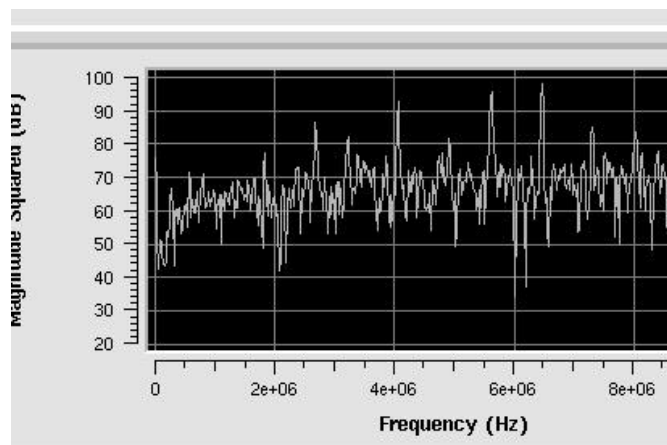
The League said its understanding of SDRs is that they are "in essence, digital computers connected to an antenna, controlled by software." The ARRL said that true SDR functions, other than baseband DSP, are yet to be incorporated into commercial or even into sophisticated homemade amateur equipment.

The League said that because of its flexibility, utilization of multiple modes, and shared allocations, the Amateur Service provides the proper environment to develop, test and deploy SDR technology. Amateur Radio is not constrained by limitations imposed on other services and "serves as a reasonable paradigm for a regulatory structure that might be adapted to other services," the ARRL told the FCC. The League said it intends to give a "high profile" to SDR developments in the Amateur Service through its technical/experimental publication, *QEX*.

The ARRL cautioned the FCC against imposing equipment authorization requirements on SDR hardware or software designed for amateur use that could inhibit experimentation. The ARRL also said it envisions that SDRs will "provide significant opportunities for improved spectrum efficiencies." It further recommended that software intended for use outside of amateur frequencies be configured to block amateur allocations.

The ARRL said that SDR affords a level of flexibility and interoperability that could enhance Amateur Radio's performance in emergency communications and disaster relief efforts with respect to served agencies. "Amateur SDR equipment could be rapidly reprogrammed to be interoperable with that of served agencies such as the Red Cross, the Salvation Army, local civil defense offices, state OES offices, and public safety agencies," the League said. The result would be "an even more immediate and adaptable source of restored communications for disaster relief coordination" than previously available.

"Literally, amateur equipment would be brought in to provide almost immediate restoration of emergency com-



*Software Defined Radios can be deployed as a spectrum analyzers*

munications for any served public service or public safety agency, with requisite expandability and interoperability," the ARRL said.

The ARRL told the FCC that SDRs would obviate the need for differing transmission standards in the future. "Using dynamic frequency selection and smart antennas, SDRs could shift, for example, among narrowband, wideband and spread-spectrum modes, and among frequency bands, depending on the transmission path, noise levels, propagation characteristics, extent of crowding, and other factors," the League said. SDRs automatically could shift transmission standards to overcome these common communication roadblocks. The League further raised the possibility of an emergency software protocol that could "transmit an emergency notification, with identification, on a common channel, and retain a record of such transmission."

"The greatest opportunity for SDRs, and the greatest benefit of the interoperability options provided by them, is for their use in emergency communications and disaster relief," the League concluded.

*See Page 6 for more information from RFSpace, Inc.*

## THE ATLANTA HAM

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## THE ATLANTA RADIO CLUB, W4DOC

Originally known as the "Atlanta Wireless Club," the Atlanta Radio Club is one of the oldest and largest amateur radio clubs in the United States. With nearly 200 members, the Club sponsors numerous activities and services for its membership and for the Atlanta area amateur radio community.

The Club is best known for its sponsorship of the annual Atlanta HamFestival, a Saturday event which hosts many vendors, exhibitors, and flea marketers of amateur radio equipment and other electronic equipment.



Bank of America Tower  
Site of Atlanta Repeaters:  
146.82(-), 224.34(-) and 444.825(+)

## W4DOC REPEATERS

The Atlanta Radio Club operates five repeaters at two locations. Currently our most active project is at the Bank of America Tower where we operate three repeaters at 146.82(-), 224.34 (-), and 444.825(+). On the web, go to <http://www.saf.com/arc/repeater.pdf> for a Acrobat 4.0 diagram of our system.

Our second location is the WFOX broadcast tower at Chestnut Mountain, south of Gainesville, GA. We operate two repeaters on 145.35(-) & 444.45 (+) . These repeaters are being renovated under the expert guidance of Dennis, KF4MHW. For pictures of that site, see <http://www.saf.com/arc/wfox.html>

The current schedule for net operations include the Sunday Night Net on 146.820 (Linked to 145.35 on FOX) at 8PM EST and the Southeastern VHF Net on Wednesday evenings at 9PM. The 146.820 machine can also be dialed into IRLP and SKYWARN/Peachtree City during inclement weather.

## ASSOCIATE ORGANIZATIONS



## MEETING NOTICE

### WHEN:

Thursday November 6, 2003  
7:30PM

### WHERE:

Red Cross 1955 Monroe Drive –  
Atlanta

### PROGRAM:

Software Defined Radio,  
Peter Ibelings, N4IP

### TALK IN:

146.820 (-) PL 146.2

### DINNER:

6:15PM The Picadilly Cafeteria  
1544 Piedmont Rd – Ansley Mall



*The Atlanta Radio Club, Inc.*  
*P.O. BOX 720398*  
*Atlanta, Georgia, 30358*

#### **Robin Cutshaw, AA4RC**

President  
404 892-6789  
robin@interlabs.com

#### **Marcel Pitzini, W5BJV**

Vice President  
404 378-2772  
mpitzini@bellsouth.net

#### **Charles Golsen, W4CHG**

Treasurer  
404-688-6278  
cgolsen03@attbi.com

#### **Sandy Slider, N4QXI**

Secretary  
404 766-3398  
sliders2@mindspring.com

#### **John Talipsky Jr, N3ACK**

Activities Manager &  
Hamfest Chairman  
770-995-6446  
johnka4vqh@aol.com

#### **Andy Keels, KD4ABB**

Repeater Manager  
770-394-9052  
andyk@hvbi.com

#### **Stan Halter, KE4VGZ**

Membership  
770-971-0805  
ke4vgz@arrl.net

#### **John Talipsky Sr, KI4Y**

Newsletter  
678-985-1316  
john@talipsky.com

# ARRL NEWS & NOTES

## Powerful Solar Flare Erupts

Source: The ARRL Letter

NEWINGTON, CT, Oct 28, 2003--The National Oceanic and Atmospheric Administration's Space Environment Center (SEC) reports a powerful solar flare erupted today from vicinity of the huge region 486 sunspot at 1110 UTC. This resulted in a severe category R4 radio blackout with an associated strong category S3 solar radiation storm. Instruments on the SOHO satellite detected the event, the SEC said.

"The SOHO/LASCO instruments also observed a full-halo coronal mass ejection (CME) with this activity, which is Earth-directed," the SEC said, adding that region 486 is the second largest observed during this solar cycle. The SEC has predicted a geomagnetic A index of 50 or greater for October 29 (UTC) and an A index of 100 for October 30 (UTC). The noon solar flux October 28 at Penticton Observatory in British Columbia was a whopping 257. The geomagnetic K index was expected to reach 4.

SpaceWeather.com is calling the flare "one of the most powerful solar flares ever recorded." Brilliant auroras could appear when the fast-moving cloud of gas and particles sweeps past Earth. That could happen as early as tonight. Residents of high-latitude locations such as the Northern United States from Northern New England to the Northwest as well as New Zealand, Scandinavia, Alaska, Canada could be treated to auroras, but these could show up in lower latitudes as well.

SEC says it expects a severe category G4 geomagnetic storm with periods of extreme category G5 levels possible as a result of this activity. The solar radiation storm also is expected to continue at strong levels for the next 48 hours.

## AMSAT Seeks Volunteers

**AMSAT-NA seeks volunteers:** AMSAT-NA is seeking applicants to fill two volunteer positions: (1) *AMSAT Journal* editor starting with the January /February 2004 issue. Applicants should have expertise in the layout of articles--particularly with Adobe *Page-maker*. The journal publishes every two months and, on average, the *Journal* editor spends about 80 hours per issue. A solid working knowledge of English is essential, together with a high-speed Internet connection. (2) AMSAT marketing director to assist in all aspects of marketing AMSAT-NA. The first task involves development of an OSCAR Echo launch fund campaign. AMSAT-NA must raise \$110,000, says AMSAT-NA President Robin Haighton, VE3FRH. Candidates should possess advertising and marketing skills and be able to easily communicate via e-mail and fax. Contact Haighton, for more information.



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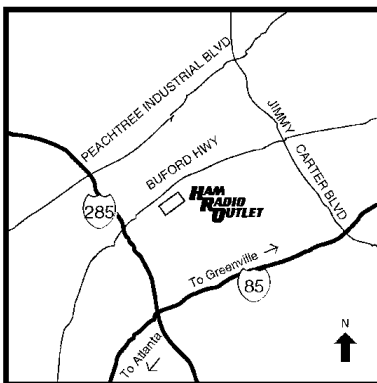
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## METRO TESTING SESSIONS

**THIS SCHEDULE IS GOING THROUGH A REVISION FOR DECEMBER. PLEASE VERIFY INFO BEFORE GOING TO SESSION**

Call ahead to verify session and be prepared with the appropriate forms and required papers. A small fee may be charged. Check with the VEC

First Sunday WCARS VEC  
2:00 PM (Except July and September)  
Johnson High School  
3305 Poplar Springs Road, Gainseville  
Terry Jones, W4TL (770)967-6364

First Thursday – EVEN # MONTHS 7:00 PM  
Fayette County Repeater Assn, ARRL VEC  
Peachtree City Library, downstairs  
Ed Ferguson, N4YTR (edferg@peoplepc.com)

Second Tuesday 7:00 PM  
Walton EMC Building  
3645 Lenora Church Road, Snellville  
Wayne Taylor, WD4CCA (770)498-7759

Second SaturdayCA VEC 8:30 AM  
Stone Mountain Methodist Church  
5312 West Mountain Street, Stone Mountain  
Hal Martin, K14RD (770)978-9160

Second Saturday – ODD # MONTHS 10:00 AM  
Fayette County Repeater Assn, ARRL VEC  
Peachtree City Library, downstairs  
Jan Dubroca(770 502-0760) jan.dubroca@delta-air.com

Third SaturdayCA VEC 9:00 AM  
Marietta First United Methodist Church  
Room 305  
56 Whitlock Avenue, Marietta  
Larry Huff, WA4CQZ (770)955-3171

Fourth Tuesday ARRL VEC 7:00 PM  
United Way Service Center  
6279 Fairburn Road, Douglasville  
Jessie Clower, KB4WFK (770)942-6466

Fourth FridayW5YI VEC 7:00 PM  
St. John Neumann Church  
801 Tom Smith Road, Lilburn  
Headphones provided  
Howie Gould, W9HG (770)921-8362

Fouth Sunday ARRL VEC 2:30 p.m  
Georgia Tech - Student Center  
350 Ferst Drive, NW  
Atlanta, GA 30332-0458  
David Ziskind KE4QLH - 404-966-6864, ke4qlh@arrl.net

## ACTIVITIES CALENDAR FOR NOVEMBER 2003

Always the 4th Saturday!  
STARS – November, 12pm – 3pm SCITREK  
Contact Penn. K4PE

## UPCOMING HAMFEST CALENDAR

Alford Memorial Hamfest  
[www.totr\\_radio.org](http://www.totr_radio.org)  
1-2 Nov 2003

Montgomery ARC  
[www.w4ap.org](http://www.w4ap.org)  
8 Nov 2003

South Carolina Section  
Convention  
Grand Strand ARC  
[www.w4gs.org](http://www.w4gs.org)  
8 Nov 2003

West Central Florida Section  
Convention  
Florida Gulf Coast AR Council  
[www.fgcarc.org](http://www.fgcarc.org)  
6-7 Dec 2003

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## Software Defined Radios



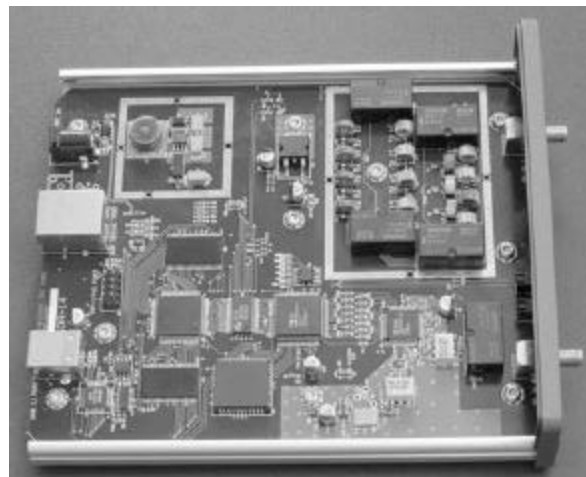
The **SDR-14** is a 14-bit software defined radio receiver. It offers a broad range of spectrum analyzer and demodulation capabilities. The hardware samples the whole 0-30 MHz band using a sampling rate of 66.667 MHz. The digital data from the ADC is processed into I and Q format using a direct digital converter (DDC). The I and Q data is then sent to the PC for processing using a USB 1.1 interface. All of the demod and spectral functions are done on the PC side. Supported formats at this time include USB, LSB, AM, FM and CW. The **SDR-14** comes with a High Frequency (HF) amplified frontend with switched attenuators and 1Hz tuning. A direct input port to the analog to digital converter is also included. This port can be used to sample signals directly up to 200 MHz+. This port can also be used to connect downconverters and spectrum analyzer frontends. The SDR-14 also supports

FFTs. The maximum spectral display width is 30 MHz simultaneously.

One of the most exciting features of the **SDR-14** is the ability to record band segments of any band to hard drive in realtime. This is done at a rate of 48GB/day for a 100 KHz wide segment. The stored file contains everything that happened in that segment of the band for the duration of the recording. The fidelity of the file is superb with over 96dB of dynamic range. The recording can be played back at any time with full tunability and choice of demodulation modes. The recording can also be analyzed for hidden signals and carriers.

The list of possible uses of the **SDR-14** include:

- Panoramic adapter for use with communications receivers. (HF band IF frequencies 8.83, 10.7, 21.4, etc)
- Radio astronomy spectral analysis.
- Direct HF band reception using appropriate antenna.
- Ionospheric and band propagation monitoring.
- Interference surveying.
- Power, noise and antenna measurements.
- Law enforcement.
- Homeland security.
- Search for coherent signals hidden in noise.
- Educational.



*Prototype Unit*

*For more info:*



[Www.rfspace.com](http://www.rfspace.com)

**ATLANTA RADIO CLUB, INC P.O. Box 720398 Atlanta, GA 30358**

New[ ] Renewal[ ] Treasurer Use: Date Paid: Amount: Cash[ ] or Check#

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Occupation \_\_\_\_\_ Spouse's Name \_\_\_\_\_

Family Names (Included in membership) List Here:

**Type of Application [ ] Voting \$22 [ ] Student \$8 [ ] Family \$2/person(non-voting)**

DUES PAID: ARC \$\_\_\_\_\_ + FAMILY \$\_\_\_\_\_ TOTAL \$\_\_\_\_\_

**Make your check payable to Atlanta Radio Club**

## Minutes...October 2003 Meeting

The meeting was called to order at 7:30 by Robin Cutshaw, AA4RC.

### ANNOUNCEMENTS

1. Ham of the year plaque to: WK4U, Tim Lemmon (from December's meeting)
2. Log of the World now live
  - ? Used for QSL'ing via computer as an alternative to cards
  - ? Provided by the ARRL
  - ? There is a small fee – (\$0.25?)
  - ? Over 7 million generated since Sept 15.
3. Penn McClatchey, K4PE distributed a club roster and asked for updates.
4. Robin showed items of historical interest for the club, including some copies of The Atlanta Ham and QST from several years ago, including the 1987 QST that featured Atlanta on the cover when the national ARRL convention was held here in conjunction with the ARC Hamfest.

Penn gave a presentation on the configuration and status of the ARC repeater equipment..

Charles Golsen, W4CHG pointed out that the deadline is here for membership dues.

### TREASURER'S REPORT

The deadline is here for membership dues.

### ACTIVITIES REPORT

STARS Station: The ARC staffs the STARS station at SciTrek each 4<sup>th</sup> Saturday, usually about 10 or 11 a.m.

Hamfest: Fliers are available. Anyone going to the Augusta or Rome Hamfests can call John and get fliers for distribution at those other hamfests..

Membership. Penn reported that renewal time is here. Renewal notices will be sent October 1 for those who have not paid their dues by that date.

**Repeaters Penn is trying to schedule time with someone to install the equipment on the Fox Tower. All the equipment is ready to go.**

IRLP Both IRLP nodes are working well. The cause of the erroneous courtesy tone is still unknown.

**Website The links from the evening's presentation are available.**

### OLD BUSINESS

(Continued on page 8)

ATLANTA RADIO CLUB, INC  
PO BOX 720398  
ATLANTA, GA 30358



## ***MEETING NOTICE November 6, 2003***

*(Continued from page 7)*

Power Pole Connectors. Charles Golsen has not been contacted by any other clubs about participating in a consolidated order. Nevertheless, we will proceed with an order for 1000 pair.

### **NEW BUSINESS**

Five new members were voted into the club:.

KI4CBT – Paul Gargiullo

KC4JD – Jay Drew

KC4AMQ – Fred Brammer

KG4WFV – Jeremy Goodman

WG4RAY – Stan Young

The presentation at the next meeting will be on software-defined radios.

### **ADJOURNMENT**

The meeting was adjourned at 9:07 p.m.